

WHAT IS CLAIMED IS:

1. A backup gateway apparatus connected to segments parallel to a main gateway apparatus in a home network, comprising:
 - a malfunctioning detection section that detects a malfunction of the main gateway apparatus, and
 - a control section that performs a partial backup function to maintain communication paths with outside lines, on behalf of the main gateway apparatus, when the main gateway apparatus is malfunctioning.
2. The backup gateway apparatus of Claim 1, wherein the control section periodically exchanges routing information with the main gateway apparatus, and performs routing function when the main gateway apparatus malfunctions.
3. The backup gateway apparatus of Claim 2, wherein the malfunctioning detection section determines that the main gateway apparatus is malfunctioning, if the main gateway apparatus does not respond to RIP, after a predetermined time interval since the routing information, which is maintained based on the RIP, is transmitted.
4. The backup gateway apparatus of Claim 1, wherein the backup gateway apparatus is operated on a home network, and is embedded in an informational home appliance that executes applications, in addition to the backup function for the main gateway apparatus.
5. A home network system comprising:
 - a home network that is provided inside of a home;
 - a main gateway apparatus that connects the home network to outside lines; and
 - a backup gateway apparatus that is provided with a malfunctioning detection section that detects a malfunction of the main gateway apparatus, and a control section that performs a partial backup function to maintain communication paths with outside lines, on behalf of the main gateway apparatus, when the main gateway apparatus is malfunctioning.

6. A backup method of a backup gateway apparatus provided in a home network, comprising:

periodically performing communication with each segment, between a main gateway apparatus and the backup gateway apparatus;

detecting from a response result, from the main gateway apparatus to the backup gateway apparatus, that the main gateway apparatus is malfunctioning; and

the backup gateway apparatus performing, if it is detected that the main gateway apparatus is malfunctioning, only a partial backup function in order to maintain communication paths with outside lines on behalf of the main gateway apparatus, when the main gateway apparatus is malfunctioning.